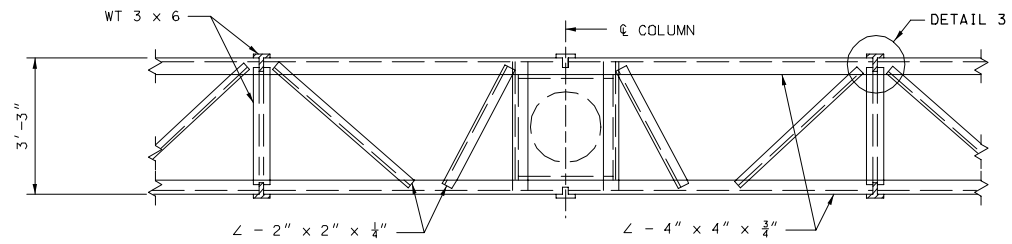
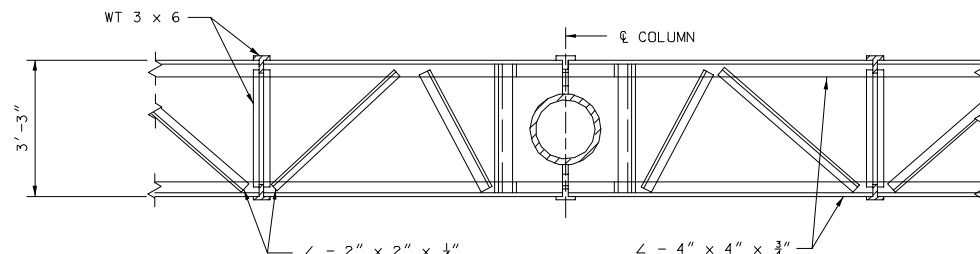


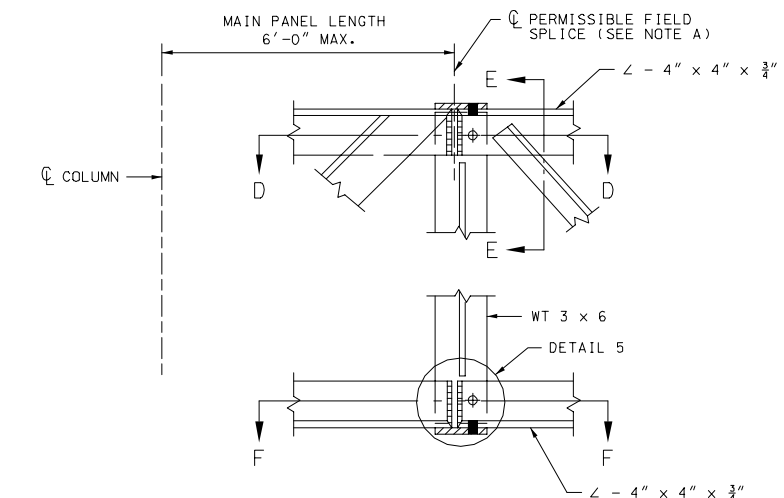
PART ELEVATION OF BUTTERFLY TRUSS



SECTION B-B

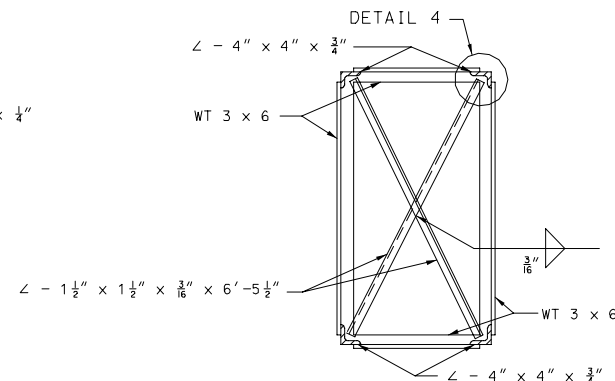


SECTION C-C



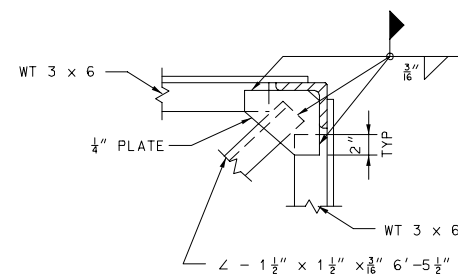
LOCATION OF FIELD SPLICE

NOTE "A": SPlicing CHORD ANGLES IN THE SHOP AND THE FIELD SPLICE SHOWN IN THIS SHEET WILL NOT BE ALLOWED WITHOUT SPECIAL PERMISSION. IF PERMISSION IS GRANTED SUCH SPLICES SHALL BE LOCATED AT THE CENTER LINE OF MAIN PANEL POINT NEXT TO COLUMN.

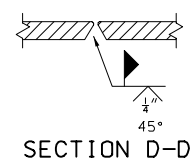


SECTION A-A

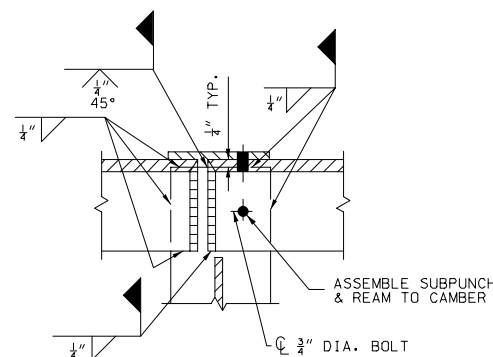
NOTE: SHRINK L - 1 1/2" x 1 1/2" x 3/16" IF NECESSARY TO TAKE UP DISTORTIONAL SLACK.



SECTION E-E
(SPLICE ONLY)

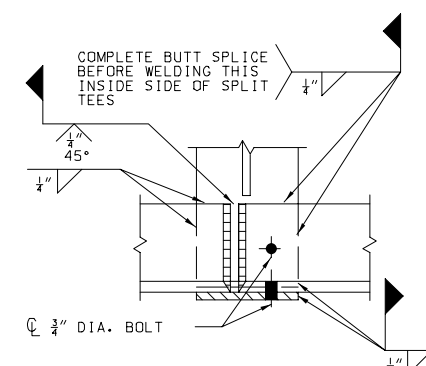


SECTION D-D

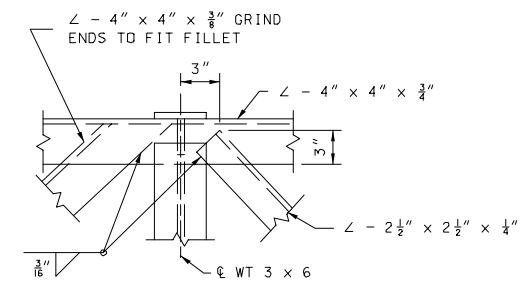


SECTION F-F

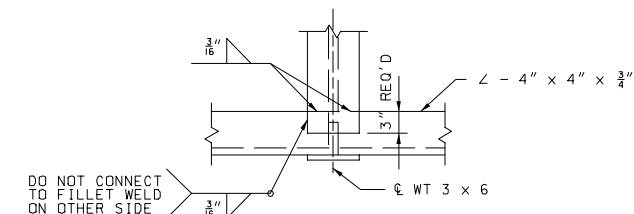
NOTE: 3/4" DIA. BOLTS SHALL BE REMOVED AFTER WELDING IS COMPLETE. BOLT HOLES SHALL BE PLUGGED AND THE OUTSIDE FACE GROUND SMOOTH.



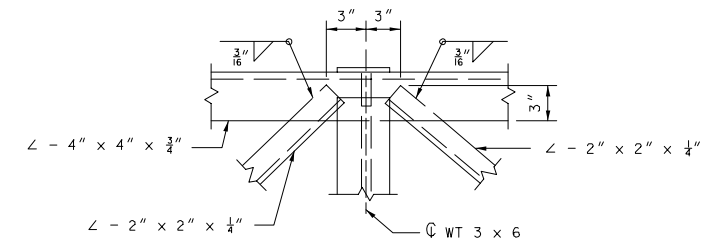
DETAIL 5



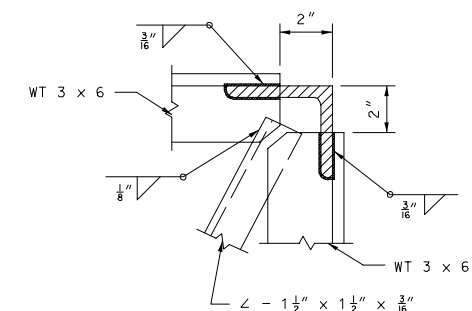
DETAIL 1



DETAIL 2



DETAIL 3



DETAIL 4

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

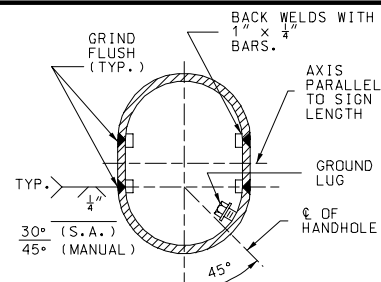
**OVERHEAD SIGN TRUSSES
BUTTERFLY & CANTILEVER
STRUCTURAL STEEL**

DATE: _____

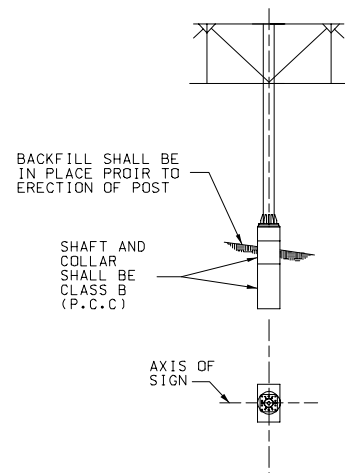
EFFECTIVE: 04-01-2005

903.12U

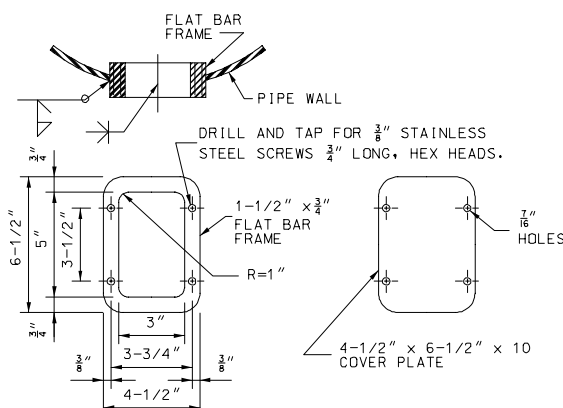
2
5



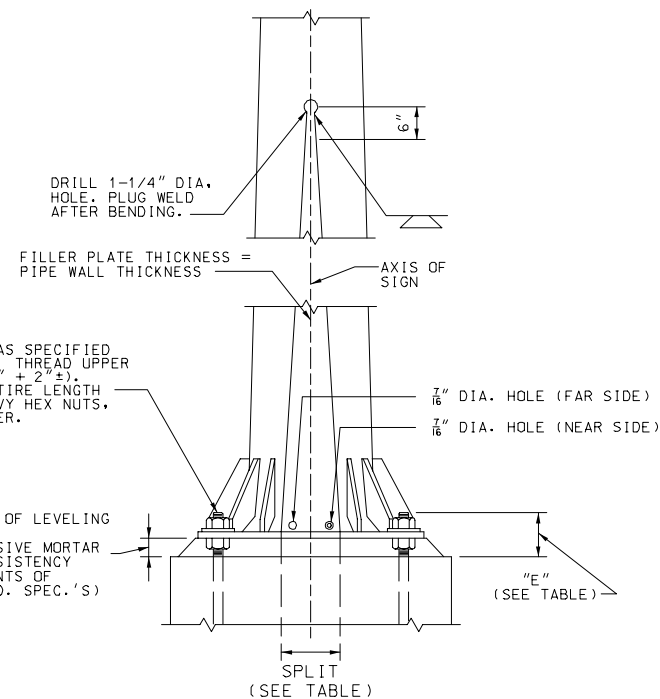
SECTION B-B
(FOR SPLIT COLUMNS ONLY)



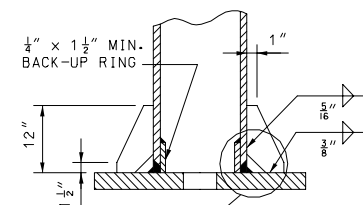
DETAIL SHOWING
AXIS OF SIGN



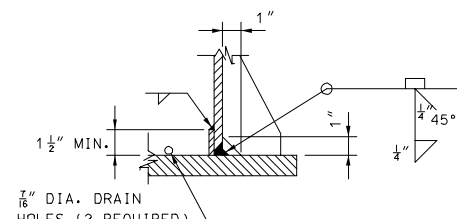
NOTE: HANDHOLE REQUIRED ONLY IN POWER COLUMN.
HANDHOLE AND COVER DETAILS



PART ELEVATION



PART SECTION A-A



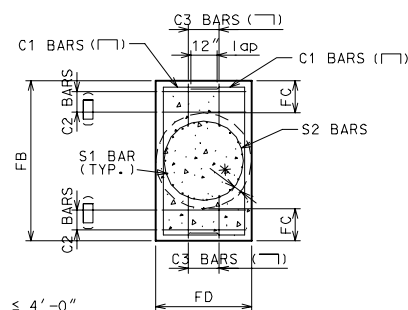
DETAIL "X"

NOTE: THE 2" CONDUIT IN THE CONCRETE PEDESTAL SHALL BE PVC SCHEDULE 40 AND SHALL BE PLACED WITH A MINIMUM RADIUS BEND OF 9-1/2".

ELEVATION

WHEN ROCK IS ENCOUNTERED AT A DEPTH NOT EXCEEDING "FH"/2 FOR $FD > 3'$, OR "FH"/4 FOR $FD \leq 3'$, THE DIMENSION "FH" MAY BE ADJUSTED TO A MINIMUM OF $3 \times "FD"$, SUBJECT TO APPROVAL BY THE ENGINEER.

CONTACT THE ENGINEER IF WATER TABLE IS ENCOUNTERED DURING EXCAVATION.
VERTICAL LEG OF C3 BARS SHALL BE PLACED INSIDE SHAFT S2 BARS.

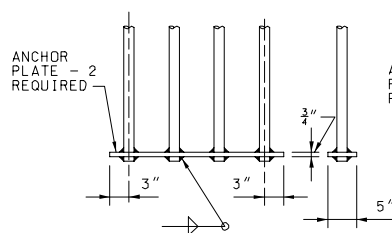


SECTION C-C

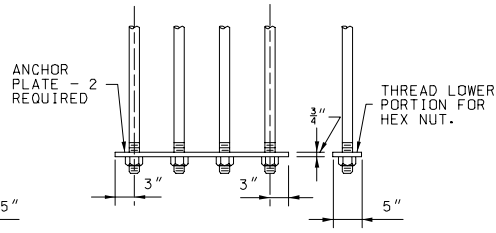
(TYPICAL SECTION SHOWING
REINFORCING STEEL)

NOTE: FOR DETAILS OF ALTERNATE
PEDESTAL, SEE SHEET NO. 4 OF 5.

ANCHORAGE
DETAIL A

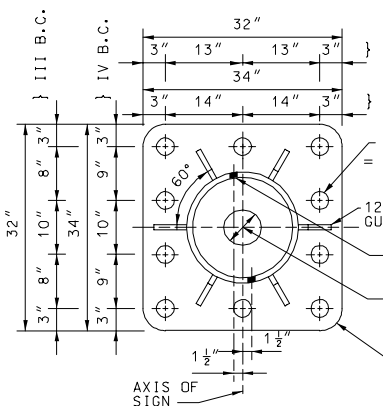


(SHOWN FOR 4 BOLTS
- SIMILAR FOR 3 BOLTS)

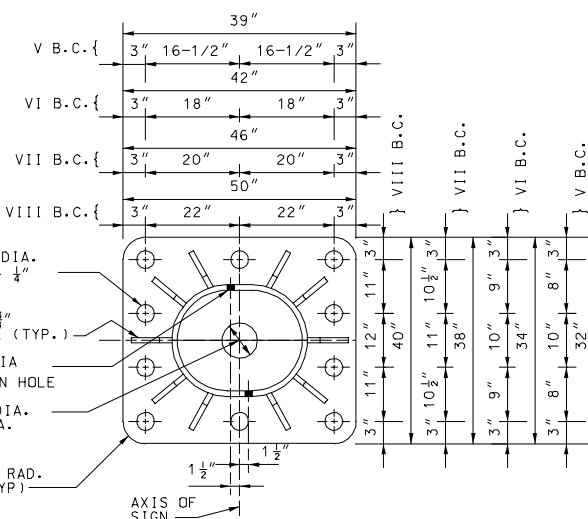


(SHOWN FOR 4 BOLTS
- SIMILAR FOR 3 BOLTS)

ANCHORAGE
DETAIL B
(OPTIONAL)



III AND IV B.C.
(10 ANCHOR TYPE)



V, VI, VII AND VIII B.C.
(10 ANCHOR TYPE)

POST TYPE	PIPE COLUMN	DIMEN- SION "E"	SPLIT	BASE PLATE SIZE**	ANCHOR BOLTS DIA.	FA (ft)	FB (ft)	FC (ft)	FD (ft)	FH (ft)	COLLAR REINFORCEMENT			SHAFT REINFORCEMENT		REBAR TOTAL (lb)	CONCRETE TOTAL (cy)
											MOMENT	SHEAR	SKIN	LONGITUDINAL	SHEAR		
											C1	C2	C3	S1	S2		
III	18" O.D. AT 93.45	8-1/2"	0"	2'-8" x 2'-8" x 1-3/4"	10 AT 2"	4.0	7.5	1.5	4.5	14.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	19-#10 BARS	#5 @ 6"	2091	12.4
IV	20" O.D. AT 104.13	8-1/2"	0"	2'-10" x 2'-10" x 2"	10 AT 2-1/4"	4.0	7.5	1.5	4.5	14.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	19-#10 BARS	#5 @ 6"	2091	12.4
V	18" O.D. AT 93.45	8-1/2"	7"	3'-3" x 2'-8" x 2-1/4"	10 AT 2-1/4"	5.0	13.5	4.0	5.5	17.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	22-#11 BARS	#6 @ 6"	3901	26.5
VI	20" O.D. AT 104.13	8-1/2"	8"	3'-6' x 2'-10" x 2-1/2"	10 AT 2-1/4"	5.0	14.0	4.0	6.0	18.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	27-#11 BARS	#6 @ 6"	4742	31.8
VII	24" O.D. AT 125.49	9"	8"	3'-10" x 3'-2" x 2-1/2"	10 AT 2-1/2"	5.0	14.0	4.0	6.0	18.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	27-#11 BARS	#6 @ 6"	4742	31.8
VIII	26" O.D. AT 136.17	9"	8"	4'-2" x 3'-4" x 3"	10 AT 2-1/2"	4.0	12.5	3.0	6.5	20.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	31-#11 BARS	#6 @ 6"	5532	34.8

* BASE PLATES, PEDESTAL, AND FOUNDATIONS, LONGER SIDES SHALL BE NORMAL TO AXIS OF SIGN.

GENERAL NOTES:

MINIMUM CLEARANCE TO REINFORCEMENT IS 3" EXCEPT AS SHOWN.

ASTM A 106 GRADE B STEEL PIPE OR A TAPERED TUBE OF EQUIVALENT SIZE AND THICKNESS MAY BE SUBSTITUTED FOR PIPE POST.

ALL STEEL PIPE COLUMNS SHALL BE EITHER GRADE "B" SEAMLESS STEEL PIPE OR GRADE "B" ELECTRIC RESISTANCE WELDED STEEL PIPE; A.S.T.M. SPECIFICATION A53.

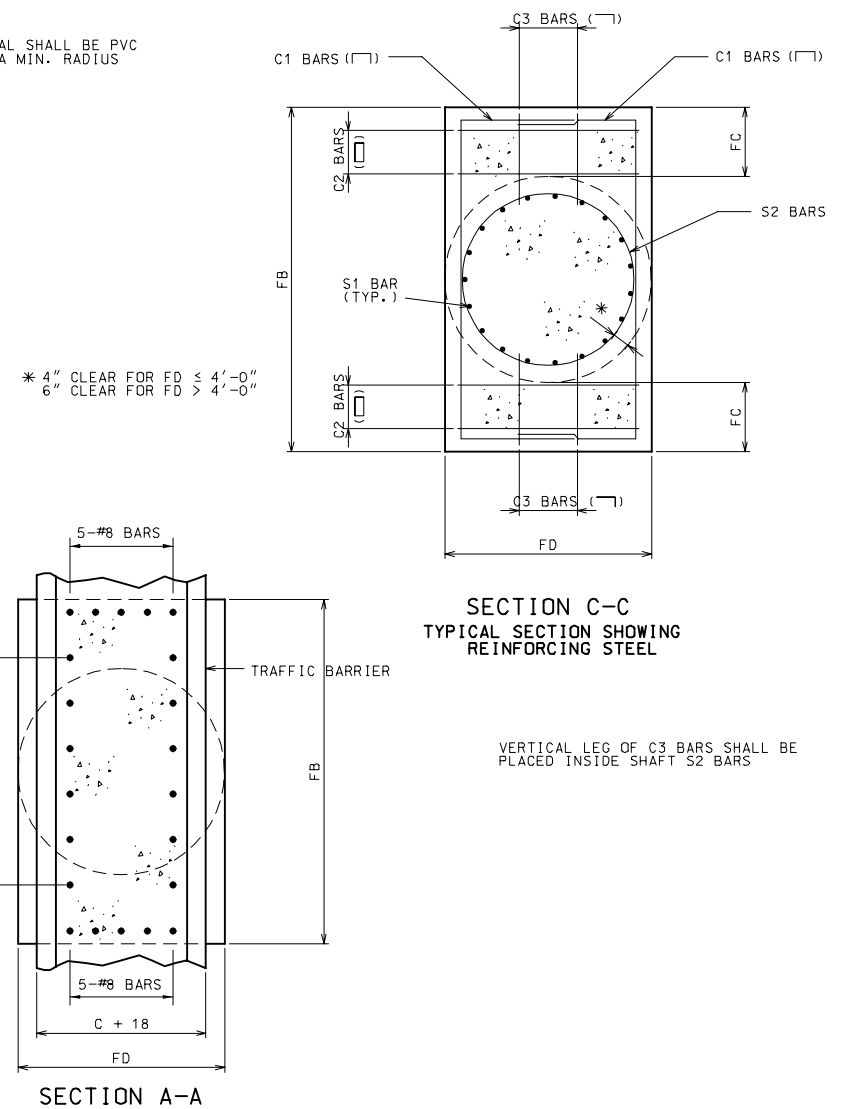
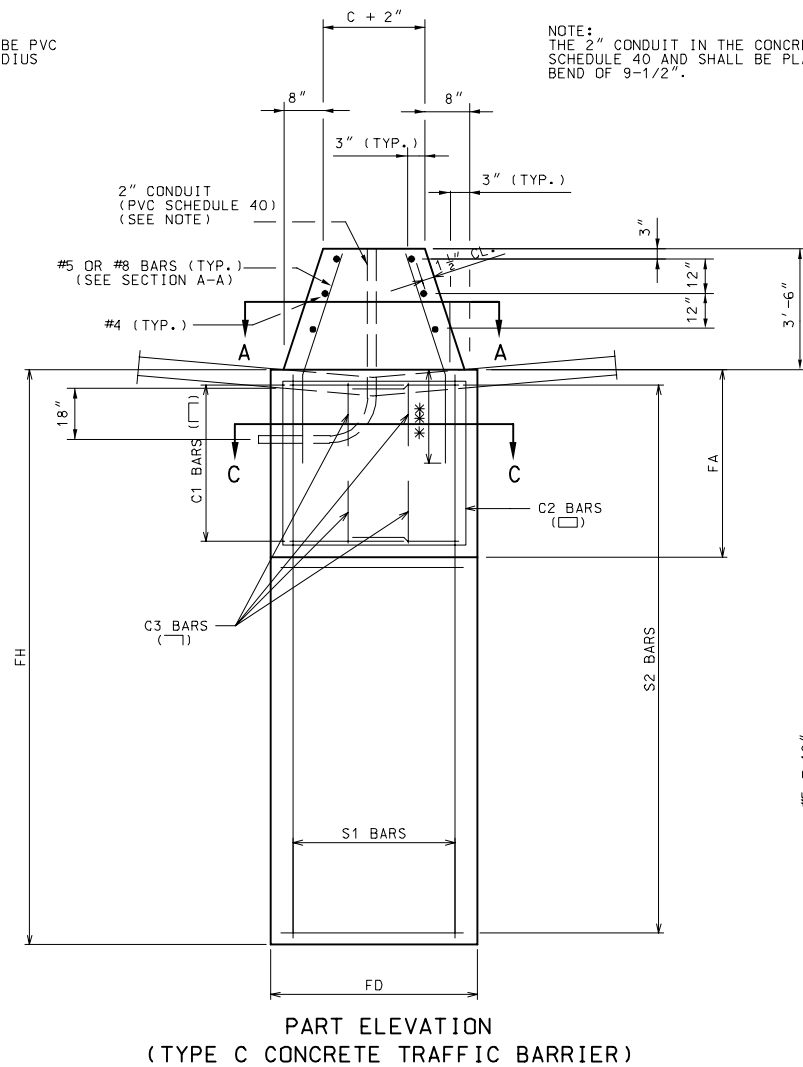
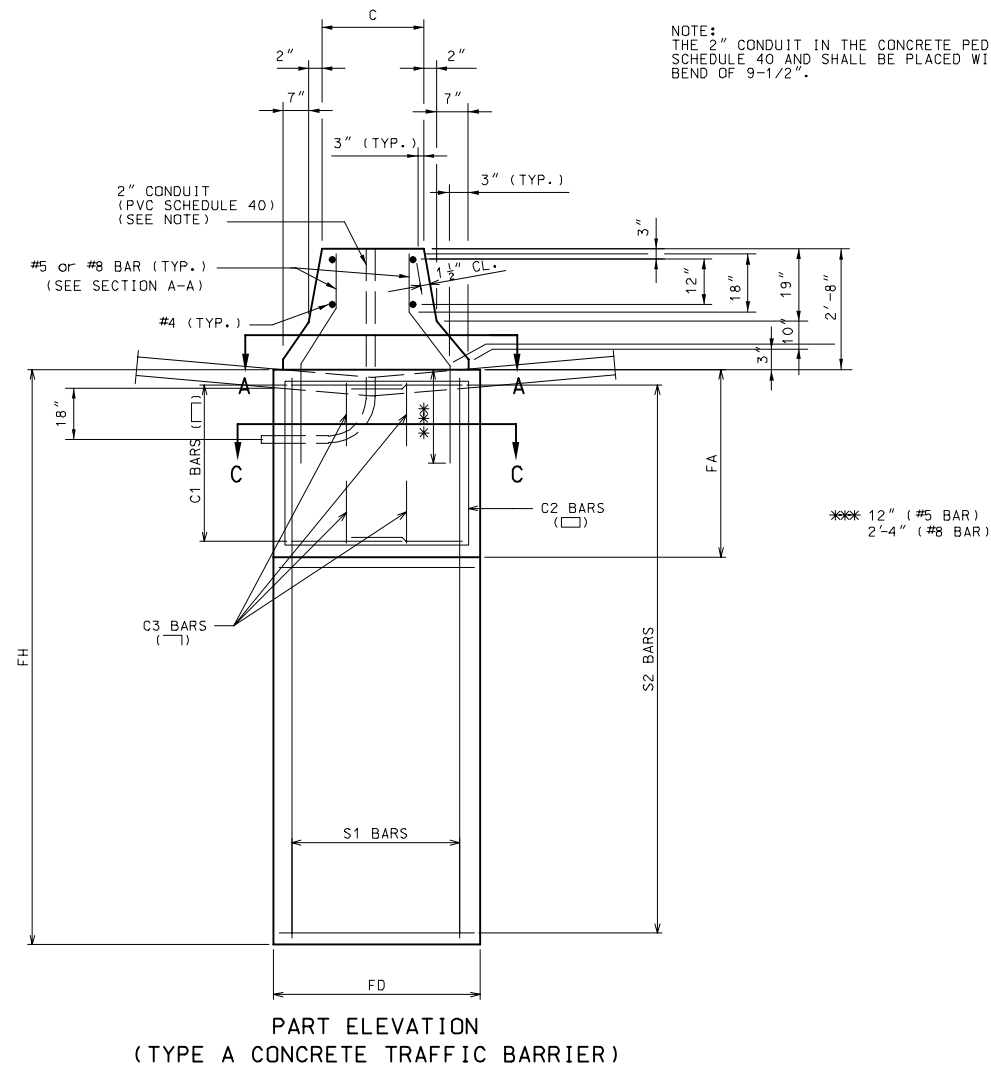
ALL STRUCTURES SHALL BE GROUNDED.

BURR THREADS ON ALL ANCHOR BOLTS.

A HORIZONTAL WELDED SPLICE MAY BE FABRICATED IN THE COLUMN BETWEEN THE TOP OF PIPE AND 4'-0" BELOW THE BOTTOM CHORDS OF THE TRUSS WHEN DETAILED ON THE SHOP DRAWINGS AND APPROVED BY THE ENGINEER.

GROUND LUGS SHALL BE LOCATED INSIDE COLUMN NEAR HAND HOLE.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	OVERHEAD SIGN TRUSSES BUTTERFLY & CANTILEVER STRUCTURAL STEEL		
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GENERAL NOTES:

MINIMUM CLEARANCE TO REINFORCEMENT IS 3" EXCEPT AS SHOWN.

WHEN ROCK IS ENCOUNTERED AT A DEPTH NOT EXCEEDING "FH"/2 FOR FD > 3'-0" OR "FH"/4 FOR FD ≤ 3'-0", THE DIMENSION "FH" MAY BE ADJUSTED TO A MINIMUM OF 3' X "FD", SUBJECT TO APPROVAL BY THE ENGINEER.

CONTACT THE ENGINEER IF WATER TABLE IS ENCOUNTERED DURING EXCAVATION.

ASTM A 106 GRADE B STEEL PIPE OR A TAPERED TUBE OF EQUIVALENT SIZE AND THICKNESS MAY BE SUBSTITUTED FOR PIPE POST.

ALL STEEL PIPE COLUMNS SHALL BE EITHER GRADE "B" SEAMLESS STEEL PIPE OR GRADE "B" ELECTRIC RESISTANCE WELDED STEEL PIPE; A.S.T.M. SPECIFICATION A53.

ALL STRUCTURES SHALL BE GROUNDED.

BURR THREADS ON ALL ANCHOR BOLTS.

PIPE COLUMN, BASE PLATE, ANCHOR BOLTS AND NOTES PERTAINING TO THESE ITEMS HAVE BEEN OMITTED FOR CLARITY. REFER TO SHEET NO. 3 OF 5 FOR DETAILS OF THESE ITEMS.

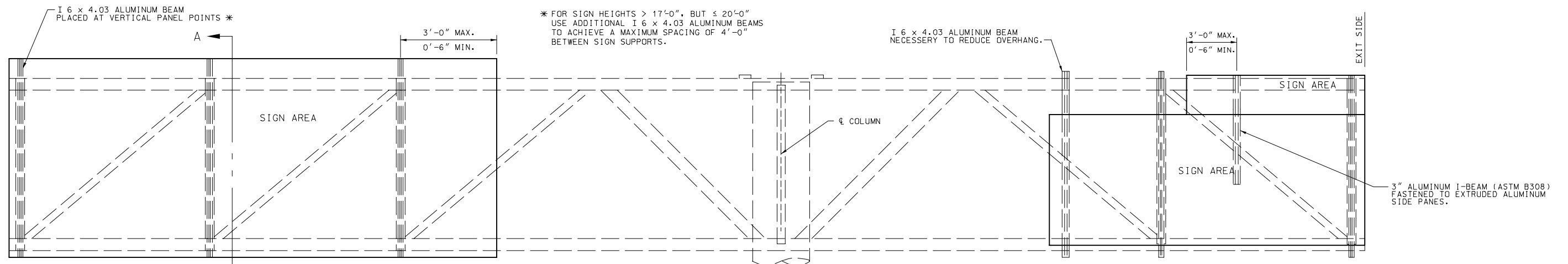
GROUND LUGS SHALL BE LOCATED INSIDE COLUMN NEAR HAND HOLE.

POST TYPE	PIPE COLUMN	DIMEN-SION "E"	SPLIT	BASE PLATE SIZE **	ANCHOR BOLTS DIA.	C (ft)	FA (ft)	FB (ft)	FC (ft)	FD (ft)	FH (ft)	COLLAR REINFORCEMENT			SHAFT REINFORCEMENT		REBAR TOTAL (lb)		CONCRETE (cu. yd.)	
												MOMENT	SHEAR	SKIN	LONGITUDINAL	SHEAR	TYPE A	TYPE C	TYPE A	TYPE C
III B.C.	18" O.D. AT 93.45	8-1/2"	0"	2'-8" x 2'-8" x 1-3/4"	10 AT 2"	2'-10"	4.0	7.5	1.5	4.5	14.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	19-#10 BARS	#5 @ 6"	2031	2042	13.4	14.5
IV B.C.	20" O.D. AT 104.13	8-1/2"	0"	2'-10" x 2'-10" x 2"	10 AT 2-1/4"	3'-0"	4.0	7.5	1.5	4.5	14.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	19-#10 BARS	#5 @ 6"	2031	2042	13.5	14.6
V B.C.	18" O.D. AT 93.45	8-1/2"	7"	3'-3" x 2'-8" x 2-1/4"	10 AT 2-1/4"	2'-10"	5.0	13.5	4.0	5.5	17.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	22-#11 BARS	#6 @ 6"	3763	3782	28.8	30.7
VI B.C.	20" O.D. AT 104.13	8-1/2"	8"	3'-6" x 2'-10" x 2-1/2"	10 AT 2-1/4"	3'-0"	5.0	14.0	4.0	6.0	18.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	27-#11 BARS	#6 @ 6"	4528	4547	34.1	36.2
VII B.C.	24" O.D. AT 125.49	9"	8"	3'-10" x 3'-2" x 2-1/2"	10 AT 2-1/2"	3'-4"	5.0	14.0	4.0	6.0	18.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	27-#11 BARS	#6 @ 6"	4528	4547	34.5	36.8
VIII B.C.	26" O.D. AT 136.17	9"	8"	4'-2" x 3'-4" x 3"	10 AT 2-1/2"	3'-6"	4.0	12.5	3.0	6.5	20.0	#6 @ 6"	#4 @ 12"	#4 @ 12"	31-#11 BARS	#6 @ 6"	5242	5259	36.7	38.7

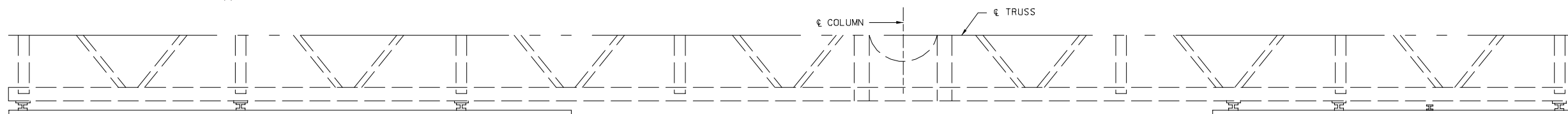
** BASE PLATES, PEDESTAL, AND FOUNDATION LONGER SIDES SHALL BE NORMAL TO AXIS OF SIGN.

DETAILS OF ALTERNATE PEDESTAL
(TO BE USED ADJACENT TO TYPE "A" OR "C" MEDIAN BARRIER)

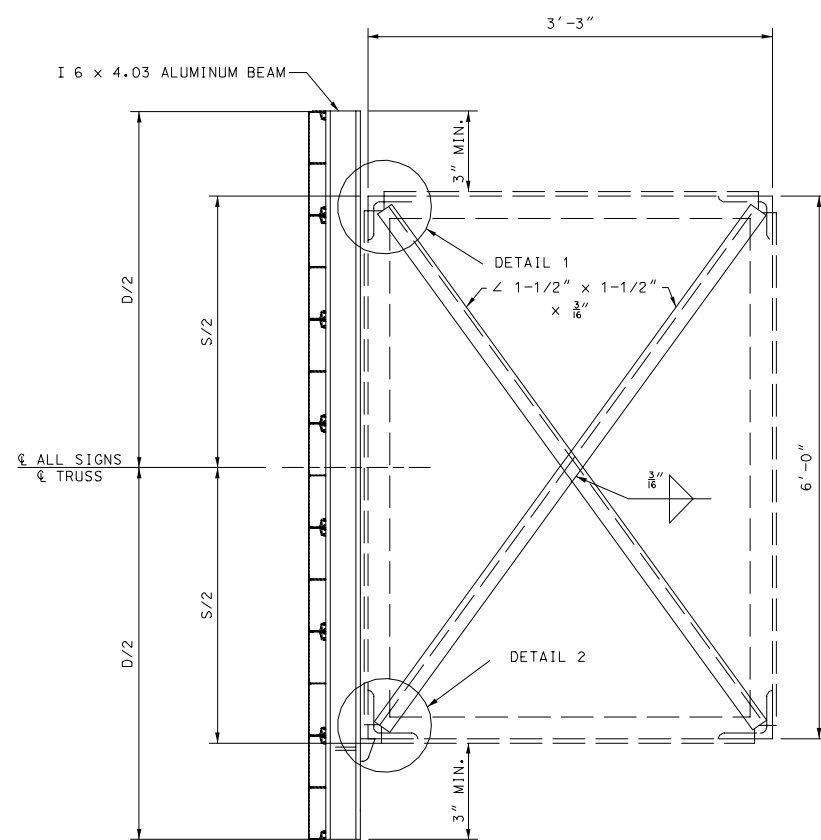
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		OVERHEAD SIGN TRUSSES BUTTERFLY & CANTILEVER STRUCTURAL STEEL	
DATE: _____	EFFECTIVE: 04-01-2005	903.12U	4 5



TYPICAL ELEVATION OF SIGNS COMPONENTS



TYPICAL HALF-PLAN OF SIGN COMPONENTS

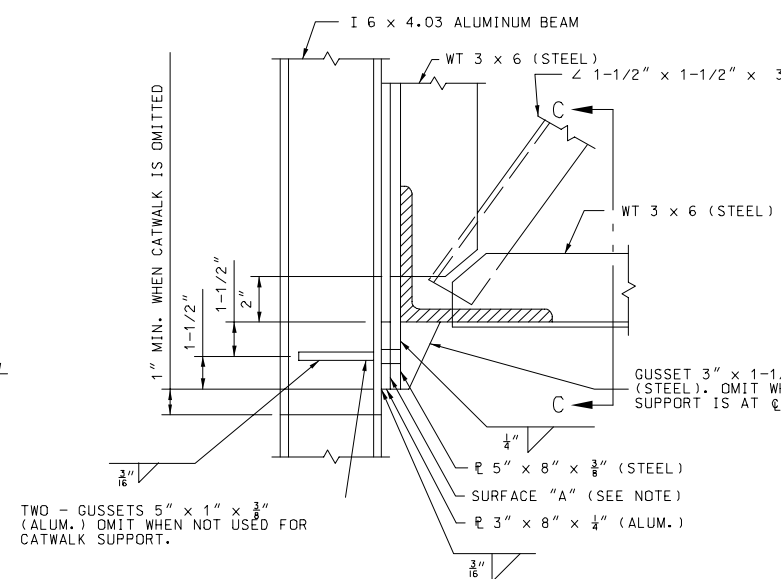


SECTION A-A

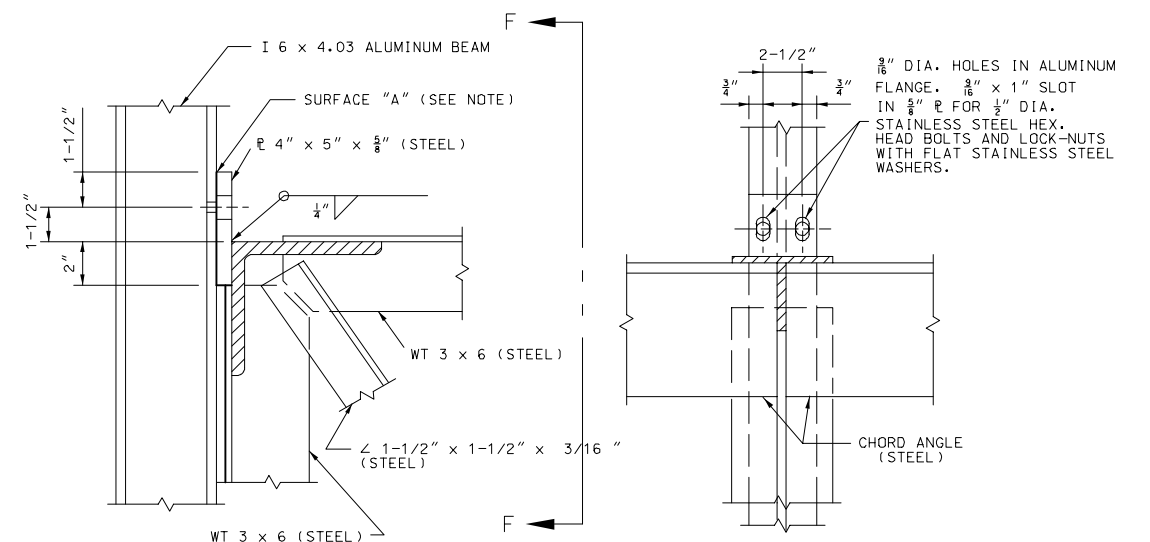
TYPICAL SECTION OF SIGN SUPPORT

NOTE: "D" = GREATEST OVERALL DEPTH OF ANY SIGNS ON TRUSSES.

** WHEN SIGN SUPPORTS ARE PLACED BETWEEN VERTICAL PANEL POINTS AS ILLUSTRATED IN TYPICAL ELEVATION OF SIGNS COMPONENTS, WELD THE 3/8" STEEL PLATE TO THE BOTTOM CHORD WITH A 1/4" FILLET WELD.



DETAIL 2



DETAIL 1

NOTE: SURFACE "A", ZINC CHROMATE ON ALUMINUM SURFACES. NORMAL CLEANING AND PAINTING ON STEEL SURFACES. ZINC CHROMATE IS NOT REQUIRED WHEN STEEL IS GALVANIZED.

SECTION F-F

GENERAL NOTES:

EXIT NO. PANELS SHALL BE MONTED FLUSH WITH THE EXIT SIDE OF THE GUIDE SIGN.

ALL SIGNS SHALL BE CENTERED VERTICALLY ABOUT THE HORIZONTAL C OF THE TRUSS.

SEE STANDARD PLAN 903.03 FOR SIGN MOUNTING DETAILS.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
		OVERHEAD SIGN TRUSSES STRUCTURAL STEEL BUTTERFLY & CANTILEVER	
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